

Lejeunoideae; that of Howe was largely relied upon for the Anthocerotales.

In this final part, also, are all of the "extras" that have been referred to from time to time in the earlier numbers of the work. First, are the "Additions" composed of 6 entities that had been omitted previously. The "List of References" contains nearly 600 entries, a sizeable contribution in itself. A short list of "Abbreviations" is included to serve as a key to the citations for those unfamiliar with our geography. As for the "Corrections," one cannot help but wish that they had been printed on only one side of the page so that they could be cut and pasted in place. One of the main contributions in this part is the "Explanation of scientific terms used in descriptions." The 17 pages of this glossary are prefaced by a few well-chosen remarks on the nuisance-value of certain terms that have been in common use—especially diminutives. In the preparation of this glossary, the use of scientific terms as applied to Hepaticae was kept in mind; it is not a mere compilation from other works. Its value is further enhanced by the inclusion of the Latin and Greek words from which the scientific terms have been derived. The volume is concluded with two indices, one to "Synonyms" and one to "Accepted Names." Although more than one index is usually bothersome, in this case it considerably simplifies finding a name in one category or the other and it eliminates the need for setting up the index with two type faces.

The "Hepaticae of North America" is much more than a mere "flora" of the region covered. In addition to detailed descriptions and illustrations of many of the plants treated, the relationships and the developmental trends in many genera are discussed as well as the characters that are used in the keys. Also, discussion of the evidence for placing certain of the entities in synonymy is included. For many groups there are two keys—one for sterile material, the other for specimens bearing mature perianths. One misses in Part V the comparative charts that were included for a number of groups in the first four parts. But, altogether, this is a reference work that will serve to point the way to research in many groups and that will prove invaluable to future students of Hepaticae. The authors deserve hearty congratulations on its completion.—ANNETTA CARTER, Department of Botany, University of California, Berkeley.

NOTES AND NEWS

NATURAL ESTABLISHMENT OF EUCALYPTUS IN CALIFORNIA. Giant eucalyptus trees which dominate the view in much of California formerly were planted as a potential source of hardwood. Now they are chiefly used as wind-breaks, or as roadside plantings, or for landscaping. Their distribution is restricted largely by their

susceptibility to freezing (Munns, E. N. Relative frost resistance of *Eucalyptus* in southern California. Jour. Forestry 16: 412-428. 1918) or by rainfall, and is approximately co-extensive with that of the native live oak in the north, or with the citrus growing areas in the south.

The opinion is sometimes expressed that the eucalyptus has not adapted itself to self-propagation in this region. Observation of *Eucalyptus globulus* in various parts of California, however, shows that in several areas seedlings are present. One grove studied in particular is that in the arboretum on the Stanford University campus. Here, among rather sparsely planted, unattended trees, there is an undergrowth of eucalyptus saplings ranging up to a few meters in height.

Upon examination of the root systems of the saplings it was evident that they were actually seedlings and not adventitious shoots from the root systems of older trees. Further evidence of the seedling nature of the young plants was the fact that six seedlings which were at least two years old were found growing as epiphytes in leaf bases of palms approximately two meters above the ground. In this grove, seepage from an irrigation ditch prolonged the seasonal water supply, while in adjacent drier areas no seedlings were encountered.

Established seedlings have been noted elsewhere in California: in unused fields adjacent to planted groves at Salinas; in a wind-break off of United States Highway 101 at Beresford; along the Bay Shore Highway opposite Burlingame; on hillsides in Marin County; and growing up within *Mesembryanthemum* plantings in the Presidio, San Francisco. In all of these areas natural conditions of humidity and of drainage favor the establishment of seedlings. Even in southern California where the trees are commonly considered not to be self-propagating, occasional seedlings are found. CHARLES L. SCHNEIDER, College of Medicine, Wayne University, Detroit, Michigan.

DR. ADRIANCE FOSTER, Professor of Botany, University of California, and retiring President of the California Botanical Society, returned to Berkeley early in January after carrying on research at the Instituto Agronomico do Norte, Belém, Pará, Brasil, since early in September. Recipient of a Guggenheim Fellowship, Dr. Foster was making anatomical-morphological studies of leaves of the Quinaceae, and of *Mouriria* and various other genera. In addition, he made several collecting trips in remote parts of Pará and visited Rio de Janeiro and the celebrated Jardim Botanica.